

REMARKS

Claims 1-30 are pending in the present application. Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph and 103(a). The claims are also objected to on various grounds. Claims 9, 18, and 24-30 are canceled. No new matter is added. The rejections are respectfully traversed in light of the following remarks, and reconsideration is requested.

The title is amended to more clearly describe the invention recited in the claims.

Objections

The Examiner objected to the claims stating that the "examiner can find no support in the specification of the claim language as now recited with respect to the 'only writing' onto the land areas."

Applicants respectfully disagree. Although the specification does not use the term "only" when describing writing onto lands, it is clear from the specification that this is supported. For example, the specification discloses the advantages of writing on lands, as opposed to grooves, which include reducing the effective depth of the groove to improve CNR. See, e.g., Applicants' specification at page 5, lines 18-29, page 6, lines 8-11 and 18-22, page 8, lines 20-23, page 10, lines 6-9, page 13, lines 22-30, and page 15, line 29 to page 16, line 7. Thus, if information were also written on the grooves instead of only on the lands, the advantages disclosed would not be realized. Further, Fig. 3 shows writing only to the land portions and not to the groove portions. Consequently, Applicants believe the limitation of independent claims 1, 16, and 23 are fully supported in the specification as filed.

Dependent claim 5 was objected to because it "contradicts the parent claim with respect to the principal surfaces in the parent claim being opposed."

Parent claim 1 recites "a first principal surface and an opposing second principal surface". Claim 1 also recites a first portion of the circular substrate and a second portion of

the circular substrate, but does not recite any relation between the first and second portions. Thus, the first and second principal surfaces are opposed. Claim 5, then further limits claim 1, by reciting that "the first portion and the second portion are on the second principal surface." Thus, the first and second portions are on the same side and opposed to the first principal surface. Applicants do not see where claim 5 contradicts claim 1. ✓

Dependent claims 9 and 18 were objected for not adding a limitation and adding no additional structural limitation, respectively.

Claims 9 and 18 are canceled. A

Dependent claims 24-30 are objected to because they "add no further method of manufacturing steps."

Claims 24-30 are canceled. X

Thus, Applicants respectfully request reconsideration and withdrawal of the objections to the claims. X

Rejections under 35 U.S.C. §112

Claims 1-30 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner states that there is no disclosure as to how to accomplish writing only onto the lands.

Applicants contend, first, that writing onto the grooves or onto both grooves and lands is known, such as disclosed in Takemura et al. (U.S. Pat. No. 5,923,640). Essentially, writing on the grooves and lands or just the grooves can be accomplished by directing a laser beam or other light source to the appropriate areas of the disc. Writing to just the lands would entail the same known procedures, and thus, there is no additional description needed. Applicants contend that one skilled in the art would know how to write only onto the lands, such as by applying writing methods similar to writing on both lands and grooves. Further, in

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Applicants' specification at page 15, lines 1-17, one embodiment is disclosed which specifies a wavelength for the laser, as well as the phase change material, thickness of the material, and amount of phase shift. Therefore, Applicants believe that the pending claims are fully enabled by the specification as filed and reconsideration and withdrawal of the rejections under 35 U.S.C. §112 is respectfully requested.

Rejections under 35 U.S.C. §103

Claims 1-30 were rejected under 35 U.S.C. §103. The Examiner rejected independent claims 1, 16, and 23 as being unpatentable over Oda et al. in view of Sonnenschein et al. and Ueki.

In rejecting claims 1, 16, and 23, the Examiner states that Oda et al. disclose a disc having both ROM and RAM (writable areas), Sonnenschein et al. disclose "bumps" on the ROM portion and the use of phase change materials, and Ueki discloses the use of amorphous-crystalline materials. The Examiner then states that "with respect to writing ONLY to the land areas in the record medium, although the above documents provide for recording to the entire ram area, the ability of limiting ones system to record only onto a portion thereof, either the land or the groove, is considered an obvious modification - i.e., such as writing on the lines of a piece of paper as opposed to writing on both the lines and spaces."

Thus, as implied by the Examiner, neither Oda, Sonnenschein, nor Ueki disclose writing only to the phase-change material on the lands, as recited in claims 1, 16, and 23. The Examiner contends that writing only to the land areas is obvious because it is known to write to the entire RAM area. However, Applicants assert that this is not the case. There has been no showing in any reference of writing only to the phase-change material on the lands. In fact, a main advantage of Applicants' invention results from writing only to the phase-

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change material on the lands, as opposed to writing on both the grooves and lands or just the grooves, as discussed throughout Applicants' specification, e.g., at page 5, lines 18-29, page 6, lines 8-11 and 18-22, page 8, lines 20-23, page 10, lines 6-9, page 13, lines 22-30, and page 15, line 29 to page 16, line 7. If such a modification were obvious, Applicants contend that there would be some reference teaching this, especially considering the Examiner's reason for modification, i.e., to save writing time/power of the laser, which is a major concern in the industry. Writing on only the lands is not a simple modification of discs having writable portions on both lands and grooves, but also requires a phase-change material with specific properties, as described in Applicants' specification. Since the Examiner has not cited such a reference and because Applicants believe the modification is not obvious, but rather based on improper hindsight, Applicants contend that claims 1, 16, and 23 are patentable over Oda in view of Sonnenschein and Ueki.

The Examiner also rejected independent claims 1, 16, and 23 as being obvious over Feyrer et al. in view of Oda, Takemura et al., and Muller.

The Examiner cites Feyrer et al. for disclosing various materials for recording and "bumps" established during a writing process, Takemura et al. for disclosing recording areas in "land" areas, and Muller for disclosing having information on two opposing surfaces. The Examiner also refers to Fig. 1B of Moribe et al. for disclosing recording material at least over the land areas.

As discussed above Oda does not disclosure or suggest that "information is written only to the phase-change material on the lands". Feyrer et al., as noted above, is cited for the use of recording materials and bumps. Feyrer et al. thus do not disclose or suggest writing only to phase-change material on the lands. Muller, also as noted above, is cited for disclosing two opposing surfaces; however, there is no teaching or suggestion of writing only to phase-change material on the lands.

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Takemura et al. and Moribe et al. were cited in the previous Office Action. In particular, Moribe et al. disclose an optical disk 281 having alternating lands 282 and grooves 283. (Moribe, col. 22, lines 58-62; Fig. 22B). "A recording layer 284 made of a magneto-optic material . . . is formed on the entire surface of the land 282 and groove 283." (Moribe, col. 22, lines 62-64). "ROM information pits 286 are formed at parts of the land 282", where the ROM information "is written beforehand." (Moribe, col. 23, lines 4-5 and 44-48). Other information on the disk include ID signal pits 285 on the land and ID signal parts 287 on the groove. (Moribe, Fig. 22B). A "majority of the groove 283 can be used as in the write region 288." (Moribe, col. 23, lines 44-45; Fig. 22B). Thus, Applicants believe that with the disk of Moribe, information is only writable to the groove, with information pits are pre-formed on the lands and grooves, with ROM pits formed on the lands.

Moribe discloses both ROM information pits 286 and ID signal pits 285 re formed on the land 282, as shown in Fig. 22B and discussed above. So, even assuming arguendo that ID signal pits 285 are part of the writable portion of the disk, they are on the same land 282 as the ROM information pits 286. This is in contrast to claim 1, which recites "bumps formed on a first portion of the circular substrate, wherein the bumps represent pre-recorded information; lands formed on a second portion . . . wherein information is written only to the phase-change material on the lands". Thus, with Applicants' invention, the pre-recorded information (bumps) is not formed on the lands where information is written.

Takemura discloses a second surface disk, in which recording marks 13 are written on both lands 11 and grooves 12, as shown in Fig. 2. Furthermore, the "recording mark 13 can be rewritten by again emitting a laser beam of controlled intensity to the same area." (Takemura, col. 5, lines 58-60). Also, as the Examiner notes, Takemura discloses pits 15 in land surface 14. Pits 15 are ROM marks. (Takemura, col. 6, lines 5-7).

Thus, Takemura does not remedy the deficiencies of the above cited references,

namely that "information is written only to the phase-change material on the lands", as recited in claim 1. Writing to both lands and groove would decrease the contrast resolution when detecting written marks on the disc, as discussed and cited above.

Therefore, for the reasons discussed above, Applicants believe independent claims 1, 16, and 23 are patentable over Feyrer et al. in view of Oda, Takemura et al., and Muller.

The Examiner rejects the various dependent claims citing the above references, along with Nakashima, Pan et al., Igarashi, and Braitberg et al. None of these references teach or suggest writing only to the phase-change material on the lands. Thus, dependent claims 2-8, 10-15, 17, and 19-22 are patentable for at least the same reasons as claims 1 and 16.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. 103(a).


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CONCLUSION

For the foregoing reasons, Applicant believes pending claims 1-8, 10-17, and 19-23 are allowable, and a notice of allowance is respectfully requested. If the Examiner has any questions regarding the application, the Examiner is invited to call the undersigned Attorney at (949) 752-7040.

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as First Class Mail in an envelope or Facsimile transmitted, addressed to: Commissioner for Patents, Alexandria, VA 22313-1450, on 29 APR 11 2004.


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